

Seventh Semester B.Tech Degree Examination

(2013 scheme)

13.706.1 : PLANT ENGINEERING AND MAINTENANCE(MPU)

Time : 3Hrs.

Max.Marks : 100

Instructions :

1) Answer all questions from **PART- A**. Each question carry 2 marks

2) Answer one question from each module in **PART-B**. Each question carry **20** marks

PART-A

1. Enumerate the importance of Tribology
2. Describe boundary lubrication.
3. Illustrate 'bathtub curve'.
4. What is the effect of moisture on wear
5. What is synthetic lubricant ? give examples.
6. Compare Reliability and Availability
7. List out the causes of deterioration.
8. Differentiate predictive maintenance and pro- active maintenance.
9. Enumerate the objective of maintenance.
10. What are the typical causes of equipment breakdown?

10X2=20 Marks

P.T.O.

PART-B

MODULE – I

11. a) Describe adhesive wear. How it differs from abrasive wear?
b) Explain the design considerations to minimize wear in machine elements.
12. a) Explain the test to find out the viscosity of grease.
b) Compare fatigue wear and fretting wear.

MODULE – II

13. a) Explain system reliability. What are the factors which will affect the reliability?
b) Two air condition machines are connected in parallel to a common generator set of reliability 0.96. The reliability of stabilizer, thermostat and compressor are 0.98, 0.97 and 0.89 respectively. Calculate the system reliability. Find also the system reliability when the air conditions are connected in series.
14. a) Explain failure analysis
b) Explain MTTF and MTBF

MODULE – III

15. (a) Explain different methods of Replacement analysis.
(b) A machine costs Rs.500. Operating and maintenance costs are zero for the first two years and increase by Rs.130 every year. If money is worth 5% every year. Determine the best age of replacement. The resale value of the machine is negligibly small. What is the weighted average cost of owning and operating the machine?
16. (a) Explain maintenance planning and scheduling with an example.
(b) Explain the elements of preventive maintenance.

MODULE – IV

17. a) Explain the use of computer in maintenance management
b) Explain RCM and TPM
18. (a) Explain the methods to prevent industrial accidents.
(b) Explain the causes of fire hazard and its prevention.